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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/639,288 | 08/15/2000 | Ross Addinall | 1/3-1/2 | 1572 |

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Docket Administrator Room 3C-512
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EXAMINER

CAO, PHAT X

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 06/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/639,288

Applicant(s)
Addinall et al.

Examiner
Phat X. Cao

Art Unit
2814



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 11, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-10 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Juso et al (US. 6,265,783).

Juso, in Fig. 4, discloses an integrated circuit die including first terminals 4 having first sets of conductive pads 10 and second terminals 9 having second sets of conductive pads 11 for enabling external connections to be made to the integrated circuit, there being a first predetermined center-to-center spacing between each pad 10 (corresponding to terminal 10) of the first set and the adjacent pad 10 of the first set, and a second predetermined center-to-center spacing, less than the first spacing, between each pad 11 (corresponding to terminal 9) of the second set and the adjacent pads of the first and second sets, and a passivation layer 5 (reference number 5 not shown in Fig. 4, see Fig. 3) exposing pads of the first and second sets; wherein the pads 10 of the first set are larger in area than the pads 11 of the second set (column 6, lines 12-

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14), wherein the pads of the first and second sets are disposed in line adjacent one edge of the die, and wherein the area of each pad 10 of the first set is suitable for flip-chip assembly of the die and is connected to one set of connection points in the integrated circuit, and the area of each pad 11 of the second set is suitable for wire bond assembly of the die and is connected to another set of connection points in the integrated circuit (see Fig. 5(b) and column 6, lines 40-42).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shim (US. 5,641,946).

Shim, in Fig. 9A (or Fig. 5A) and Fig. 11, disclose an integrated circuit die 1 including first set of conductive pads d4 and second set of conductive pads (d1,d2,d3) for enabling external connections to be made to the integrated circuit, there being a first predetermined center-to-center spacing between each pad d4 of the first set and the adjacent pad d4 of the first set, and a second predetermined center-to-center spacing, less than the first spacing, between each pad of the second set and the adjacent pads of the first and second sets, and a passivation layer 6 exposing pads d4 of the first sets for connecting to the terminals B4 for flip-chip assembly of the die and exposing pads (d1,d2,d3) of the second sets for connecting to the terminals B1, B2, and B3 for

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wire bond assembly of the die; wherein the pads d4 of the first set are larger in area than the pads (d1,d2,d3) of the second set.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shim (US. 5,641,946).

Shim does not specifically disclose that the first set of pads is connected to one set of connection points and the second set of pads is connected to another set of connection points in the integrated circuit.

However, it would have been obvious to connect the first and second set of pads of Shim to the connection points as set forth above for the known purpose of providing the electrical contacts between the semiconductor die and the mother board.

Allowable Subject Matter

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7. Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-6 are objected because prior art of record fails to disclose all the limitations recited in above claims, including the combination of the pads of the first set being disposed in two lines adjacent edges of the die and the pads of the first set being disposed in staggered relationship with respect to the pads of the first set in the other of the two lines.

8. Claims 11-12 are allowed.

Response to Arguments

9. With respect to Juso, Applicant argues that the insulative layer 5 cannot function as a passivation layer because the insulative layer 5 having a plurality of through-holes therein.

The arguments are not persuasive because Applicant has presented no evidence on this record to support the position that the layer 5 made of insulative material and partially covering the top surface of the pad 10 cannot function as a protective layer or a passivation layer.

Applicant is noted that the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F. 2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F. 3d 1465, 43 USPQ 2d 1362 (Fed. Cir. 1997). See MPEP 716.01 © for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration. Furthermore, the feature of forming the passivation layer having a plurality of

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through-holes therein seems to be required by the claim language. Specifically, claim 1 states that “a passivation layer exposing only pads of the first set, or exposing pads of the first and second sets”. Therefore, if the insulative layer of the claimed invention having a plurality through-holes therein for exposing the pads can be considered as the passivation layer, then why cannot the insulative layer 5 of Juso be considered as the passivation layer as claimed?

With respect to Shim, Applicant argues that Shim fails to disclose the pads of the first set being larger than the pads of the second set because the pad lands 5 all have the same size.

Applicant's view is incorrect because Shim clearly discloses that the sizes of the pad lands 5 are different from each other, and they are designed in such a manner that the outermost land 5 is larger than the innermost land 5 (see Figs. 9A and 11, and related text, column 5, lines 14-21).

Applicant further argues that Shim fails to disclose a second spacing between each pad of a second set and an adjacent pad of a first set or the second set, wherein the second spacing is less than a first spacing between the pads of the first set.

The Examiner disagrees because as discussed in details above, the innermost lands 5 are formed in the boundary of the outermost lands 5. Therefore, if the spacing between the outermost lands 5 is defined as the first spacing of the first set and the spacing between the innermost lands 5 is defined as the second spacing of the second set, then the second spacing of the second set is clearly less than the first spacing of the first set because the innermost lands 5 are formed in the boundary of the outermost lands 5.

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Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessfully, the Examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

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PC

June 3, 2002



PHAT X. CAO
PRIMARY EXAMINER